PSYCHOLOGICAL AND SEXUAL ASPECTS OF GENITAL HERPES IN WOMEN

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CHAPTER I

INTRODUCTION

Genital herpes, an inflammatory viral infection, is now one of the most prevalent sexually transmitted diseases worldwide. Its incidence has been increasing in epidemic proportions and, while research focusing on herpes has intensified, relatively little is known about the psychological components of the disease. Most of the published research focuses on medical aspects of the disease (e.g., describing the course of the disease, treatment approaches), but the disease has attracted attention in the popular press due to its presumed psychological effects. However, little scientific research has been conducted to investigate these hypothesized adverse emotional side effects, and some investigators have not found a significant association between negative emotional states and genital herpes (Taylor, 1978).

Historical Review

Genital herpes is not a new disease--it has been noted in the medical literature for hundreds of years. A complete review of the literature covering the time between the first description of genital herpes in 1736 and the late 1800's has been provided by Hutfield, a British physician (Hutfield, 1966; 1968).

Most of the early discussion and observations concerning genital herpes were dominated by French and German physicians. The

disease was first described in 1736 by John Astruc, a French physician. It was a time in which French prostitutes were subjected to intense medical scrutiny, and the symptoms associated with genital herpes began to be noted with increasing frequency. The cluster of symptoms, consisting primarily of inflamed ulcers and blisters filled with a lymph-like substance, was finally given its first recorded name, "l'olophlyctide progeniale," by Alibert in 1832. [The word "herpes" derives from a Greek word which means "to creep" and apparently refers to the spreading, "creeping" sores noted in many cases of herpes.] Genital herpes was noted quite early as being transmitted through sexual contact, and was documented and studied many years before the more common variety of labial herpes (lip cold sores) received any serious attention. Genital herpes increasingly became known as being endemic to women working as prostitutes, and Unna in 1883 noted that it was a vocational hazard for women of a "particular class." He further hypothesized that genital herpes was related to rape, menstruation, excessive sexual contact, pregnancy, obesity, impeded penile erection, and uncleanness. While granting causal status to any of these conditions was short-sighted, researchers were beginning to identify some of the possible "triggers" which could facilitate an active recurrence of the virus. Diday and Doyon published the first book on the subject in 1886 (cited in Hutfield, 1968) and described the occurrence of genital herpes and reported that it frequently was associated with other venereal diseases, menstruation, and stress conditions.

A number of various treatments were prescribed for the condition in the late 1800's (Hutfield, 1966). One of the most popular appears to have been a solution of arsenic which was purportedly quite effective. Perhaps, though, the concurrent recommendation of abstaining from sex when an outbreak was active proved to be the most reasonable explanation for success in inhibiting transmission. Other treatments, such as starch poultices, cold creams, and subcutaneous injections of ether iodoform also were advocated by various professionals. It is interesting to note that many of the "cures," the effectiveness of which are repeatedly denied by the American Social Health Association and unsupported by scientific evidence, are advertised today by various "quack practitioners" and purchased by a desperate, overly-optimistic public. The treatments prescribed in the latter part of the last century usually were accompanied by a caution to avoid alcohol, tobacco, fatigue, and sexual excess. Above all, patients were advised to become involved in a faithful marriage, in which stress was minimized and sexual fidelity maximized.

Little attention was paid to genital herpes in the medical literature during the first half of this century. The disease was of little concern to either epidemiologists or medical experts. Perhaps due to more restrictive, less permissive sexual attitudes, the disease was not as prevalent as it is today, nor did it appear to be increasing in incidence. Furthermore, since the symptom picture already had been clarified and effective preventive treatment had been ruled out due to the viral nature of herpes, medical

experts and researchers moved on to more fruitful areas of research. However, as incidence began to rise in the middle 1960's, research interest increased as well.

Incidence

The marked increase in the incidence of genital herpes led the Center for Disease Control (CDC) to announce in the spring of 1982 that herpes was the most prevalent venereal disease and that it had, in fact, reached epidemic proportions in the United States (Center for Disease Control, 1982). The CDC analyzed data on sexually-transmitted diseases (STDs) collected by the National Disease and Therapeutic Index. The Index maintains a national, stratified, random sample of data from patient visits with physicians in fee-for-service private practice in the United States. In a comparison of information obtained in 1966 and 1979, the rate of consultations for genital herpes infections increased from 29,560 in 1966 to 269,890 in 1979. Genital herpes was the diagnosis in 3.4/100,000 office visits in 1966, and had increased to 29.2/100,000 in 1979. Many of the STDs, such as syphilis and gonorrhea, must legally be reported to the United States Public Health Service. However, medical experts are not required to report cases of genital herpes, and therefore, an exact estimate of incidence is not available. Estimates of the current number of people with genital herpes range from five to twenty million. The disease spreads to approximately 600,000 new individuals per year. These numbers are thought to be fairly conservative estimates and other researchers place the

incidence rates at a much higher level (Hamilton, 1980). In one study at a New England hospital, genital herpes was seen seven times more frequently than primary syphilis (Chang, Fiumara, & Weinstein, 1974). During an 18-month period, 116 women with venereal diseases were identified. Of these cases, 101 were diagnosed as having genital herpes and only 15 had primary syphilis. This higher frequency of herpes as compared to syphilis and other STDs is at odds with the research of others. Nahmias, VonReyn, Josey, Naib and Hutton (1973), in a study of venereal disease clinics in Great Britain and the United States, found that the ratio of gonorrhea cases to genital herpes cases was approximately 10:1.

The discrepancy concerning differential occurrence rates of various STDs is becoming increasingly understood as a function of the socioeconomic status of the population being studied. Genital herpes is quickly gaining a reputation as the venereal disease of the middle-to-upper socioeconomic class, and demographic information on herpes patients partially substantiates this observation. In a study of 3,142 individuals with recurrent herpes (Knox, Corey, Blough, & Lerner, 1982), the mean education level was 15.2 years. For 55.2% of the subjects, household earnings were \$20,000, while 13.6% had earnings greater than \$45,000. The incomes reported in this study were somewhat higher than those reported in the general population. According to the Statistical Abstract of the United States (United States Department of Commerce, 1982-1983), 47.9% of the general population has an income of \$20,000 or greater, while only 7.2% report an income greater than \$50,000. The numbers

reported in the Knox et al. study cannot be assumed to be reflective of all individuals with herpes since participants in the study were highly motivated, self-selected members of the national Herpes Resource Center. However, it is becoming increasingly accepted that genital herpes is the most frequently occurring STD in affluent, well-educated groups, and that the epidemic aspects of the disease are particularly evident in this group. In a study of genital herpes in a university student population, a group which is predominantly middle-to-upper socioeconomic class in composition, herpes occurred with much greater frequency than gonorrhea and syphilis (Sumaya, Marx, & Ullis, 1980). Only a graphical representation of the comparison of STD occurrence was provided, but the ratio of herpes to other STDs appeared to be approximately 20:1. In summary, it appears that the comparative incidence of various STDs shifts depending on what population is being studied. In studies of venereal disease clinics, frequented primarily by those unable to afford private care, gonorrhea and syphilis rates generally exceed rates for herpes. In contrast, university settings and private medical practices are likely to report comparatively higher incidence of herpes.

Etiology and Symptomatology

Herpes, both the genital type and the less-destructive labial herpes, is caused by one of two viruses: herpes simplex virus type 1 (HSV-1) or herpes simplex virus type 2 (HSV-2). Until recently, researchers thought that herpes viruses appearing above the waist

were caused by HSV-1, while herpes symptoms appearing below the waist were attributable to HSV-2. However, evidence indicates that this distinction is not an accurate one. In one study (Chang et al., 1974), 101 genital herpes cases were verified by virus isolation. In order to further specify whether the isolated virus was Type 1 or Type 2, a special immunofluorescent technique was used. Due to a limited supply of the fluorescent type-specific rabbit antiserums, only 21 isolates were typed. More than half (11 cases) were HSV-1. In a comparison of six cases of labial herpes, all six were HSV-1. In a more recent study (Reeves, Corey, Adams, Vontver, & Holmes, 1981), 137 patients with a first episode of genital herpes were typed. Only 15% of these patients were infected genitally with HSV-1. It was noted also that those patients with HSV-1 had both less severe symptoms and a lower likelihood of recurrence than patients infected with HSV-2. Other estimates of HSV-1 in genital herpes are 37% (Kalinyak, Fleagle, & Docherty, 1977) and 32% (Peutherer, Smith, & Robertson, 1981). Whatever the actual rate of occurrence, it is clear that the crudely-devised dichotomous classification of HSV-1 and HSV-2 attacking respectively above and below the waist is no longer accurate. Most researchers view this change in pattern as a reflection of a general shift in patterns of sexual behavior. The increased practice of oral-genital contact leads to the transmission of the herpes virus from the mouth area to the genital area. The opposite mode of transmission, from the genital area to the mouth or facial area, is increasingly being noted in cases of labial and oropharyngeal herpes (Chang, 1977).

Genital herpes is transmitted typically, but not universally, by coming into contact with an infected sexual partner. A number of asymptomatic people have HSV antibodies present in their blood, indicating that they have come in contact with the virus, but for some unknown reason have not shown overt evidence of it. The symptoms of the virus can manifest themselves in a number of different patterns: some individuals never exhibit active symptomatology,^{1,2,3} some exhibit symptoms but not necessarily at the time of first infection, and some exhibit active symptoms a few days after sexual contact with an infected partner. In one study of 137 patients with a first symptomatic episode, 78 of the patients had a true primary infection which was verified by the absence of HSV antibodies in acute phase serum (Reeves et al., 1981). Fifty-nine of the patients, however, were experiencing "delayed" infections (antibodies present); these patients were experiencing first episodes of vesicular genital lesions due to HSV, yet the virus had been housed in their bodies without earlier external manifestation.

Symptoms of the herpes virus appear approximately 3 to 7 days after it has invaded the body. Eruptions appear in blister-like sores, usually at the site of invasion. Inflamed vesicles are seen predominantly in the mucous membranes and cluster at mucocutaneous junctions. In men, these lesions often appear on the penis and surrounding region. In women, the blister-like sores appear on the clitoris, labia minora and majora, vagina, and cervix. Lesions frequently spread to the abdomen, thighs, and buttocks. When sores appear internally, such as in the urethra or bladder, secondary

complications (e.g., urethritis, cystitis) often develop. In a study of 268 patients with primary episodes of herpes (Corey, Adams, Brown, & Holmes, 1983), 8% developed aseptic meningitis, 2% developed sacral autonomic nervous system dysfunction, and 11% developed secondary yeast infection. Sores appear also, albeit with less frequency, on the scrotum or thighs. In homosexually-active individuals (as well as others to some degree), lesions to the anal area are increasingly being noted. Associated features of the disease include inguinal lymphadenopathy (swelling of the regional lymph glands), fever, and a general feeling of malaise. Chang et al. (1974), in their study of 39 women with genital herpes, reported that 81% had dysuria, 62% had dyspareunia, 72% reported pain, and 92% had itching. For many people, the primary episode is particularly painful and a burning sensation in the ulcer-like sores is a frequent complaint. The sores often disappear within a few days, and the underlying tissue heals. In severe cases, however, the sores heal only to have more sores take their place.

When the external symptoms subside, the virus does not disappear completely. Instead, it migrates up the nerve bodies into the sacral root ganglion where it remains permanently. In some persons, the virus remains latent and does not resurface externally. However, in approximately two-thirds of herpes sufferers, recurrences will occur repeatedly. In one longitudinal study in which 137 patients with a first episode were followed, 55% had a later recurrence (Reeves et al., 1981). Eighty-seven patients with a recurrent episode also were followed throughout this study. It was found that

an individual who has any recurrence at all is likely to have repeated recurrence. Also, it was noted that primary episodes attributable to HSV-1 were significantly less likely to recur than those caused by HSV-2. In response to the Reeves study, one researcher (Strassburg, 1981) questioned whether many of the recurrent episodes were true recurrences or if, instead, they reflected cases of reinfection by other herpetic partners. He suggested that follow-up studies on recurrence rates should control for sexual contacts. Corey and Reeves (1981) acknowledged the value of determining the relative importance of endogenous relapse and exogenous reinfection to recurrent genital herpes. They also noted that they did have access to follow-up sexual contact information in 82% of their cases in the previous study (Reeves et al., 1981). For 80% of those patients who had engaged in no sexual contact since the time of first infection, symptoms recurred. While acknowledging the need to control for the possibility of reinfection, they concluded that reinfection was not likely to be a frequent cause of recurrent genital herpes.

Relationship to Birth Defects and Cancer

Two aspects of genital herpes which make it a particularly frightening disease are its hypothesized relationship to cervical cancer, and the potentially devastating consequences to infants born during an active case ongoing in the mother. A pregnant woman with an active case of herpes runs a substantial risk of passing the virus on to her newborn if she delivers vaginally. Newborn babies

are especially susceptible to a severe illness from HSV infection. Fully one-half of all newborns infected with the virus die, and half of the survivors have serious consequences (including permanent brain damage) (Friedrich, 1980). The disease is usually transmitted through direct contact in the birth canal, and transplacental transmission is rare. Most problems can be avoided by close monitoring and, if necessary, abdominal birth. In one study of 80 pregnant women with a history of recurrent genital herpes (Vontver, Hickok, Brown, Reid, & Corey, 1982), frequent recurrences of the disease were noted and monitored throughout the pregnancies. Even though this group of women had a high rate of delivery by cesarean section (32.5%), all study patients were delivered at term and the outcomes of their infants were considered to be quite good. Some researchers (Ng, Reagan, & Yen, 1970) have found that the problems associated with herpetic pregnancies are compounded by the fact that active outbreaks occur with significantly greater frequency in pregnant women. They have hypothesized that the increase in recurrence rate is likely to be related to changes in hormonal level during pregnancy.

A number of investigators have discussed the possible link between genital herpes (specifically of the HSV-2 variety) and cervical cancer (Naib, Nahmias, Josey, & Kramer, 1969; Ng et al., 1970). Ng et al. (1970) noted that their research showed that the herpes virus was possibly responsible for initiating an epithelial change in the cervix which subsided when the virus was inactive. They hypothesized that the epithelial abnormality initiated by the

herpes virus could continue to progress and could result in out-spoken cancer with or without a promoting agent. However, they emphasized that in their follow-up (1-5 years) study of 90 women, cervical dysplasia was evident but cancer was not. The oncogenic potential of HSV-2 has been noted in a number of animal studies. Newborn mice exhibited cancerous growth after being injected with HSV-2 (Nahmias, Naib, Josey, & Clepper, 1967). Also, genetic information from HSV-2 has been detected in human cervical cancer cells (Adam, Rawls, & Melnick, 1974; Royston & Aurelian, 1970; Aurelian, 1974). The numerous studies linking HSV-2 to carcinoma strongly suggest that herpes virus is a specific carcinogenic factor, but findings in this area are not conclusive.

Treatment and Control

Theoretically, there are a number of ways to approach the problem of containing the herpes epidemic and treating individual cases. The increasing frequency of transmission of the disease can only be stemmed by a decrease of sexual contact in actively herpetic individuals. Attempts are being made both to educate the public concerning the various aspects of the disease and to provide information about its transmission. The efforts of many individuals with herpes who do refrain from sexual contact during an active outbreak are stymied by the recent finding that individuals often shed the virus (and are, therefore, contagious) even in the absence of any external symptoms (Adam, Dreesman, Kaufman, & Melnick, 1980; Adam, Kaufman, Mirkovic, & Melnick, 1979). In the Adam et al. (1980)

study, five women (three with a history of recurrent genital herpes, one with recurrent oral herpes, and one with no history of either) were followed over a period of time with samples of cervical and vaginal secretions taken daily. In those women with a history of genital herpes, evidence of the virus was detected repeatedly in the absence of overt clinical symptoms. These "asymptomatic shedders" are potentially infectious at times when they have no readily available way of detecting this condition.

Other efforts to control the problem include finding ways to destroy the latent virus, developing a vaccine to prevent contracting the disease, and attempting to replicate the immunological defenses of individuals who are not susceptible to the disease (Tierney, 1982). These areas of investigation, however, have not been fruitful and most research focuses on treatment of specific symptoms after they already have appeared. Preventive and curative treatments are not currently available, yet a great deal of research is being conducted to find such treatments.

One of the most promising treatments for herpes is acyclovir, whose use was approved by the Food and Drug Administration in March, 1982. Acyclovir is a "fraudulent nucleoside" which alleviates symptoms by preventing further replication of the virus. It appears to have this effect by substituting itself for nucleosides in the virus. Mitchell, Gentry, Boen, Bean, Groth and Balfour (1981) administered intravenous acyclovir to 11 of 24 patients with HSV infections of the oropharynx, lip, or skin in a randomized, double-blind, placebo-controlled study. Significant differences between

the acyclovir-treated and placebo-treated groups occurred in two areas--cessation of pain and termination of viral shedding. Acyclovir also proved to be superior in stopping new lesion formation. The authors also noted that, except for three cases of mild injection reactions, acyclovir was remarkably non-toxic. In a similar study, Corey, Fife, Benedetti, Winter, Fahnlander, Connor, Hinz and Holmes (1983) also found that intravenous acyclovir significantly reduced viral shedding and other symptoms in primary herpes patients as compared to individuals treated with a placebo.

Recurrence of herpes is highly likely to happen in the immunosuppressed (those with lessened defenses for fighting disease and infection), and heart transplant patients are particularly susceptible. Chou, Gallagher and Merigan (1981) compared five heart transplant patients (with herpes) receiving acyclovir to five receiving placebo. Dramatic differences were noted between the groups, with acyclovir showing superiority in relieving herpetic pain and healing lesions. No adverse reactions to the drug were seen. However, the obvious symptoms of the virus did recur after acyclovir therapy was terminated, and there is no evidence to indicate that the drug eradicates the dormant virus. The latest evidence indicates that acyclovir, while providing excellent relief in initial cases, does little to reduce symptoms in women with recurrent herpes.

An experimental drug which also shows promise for treating genital herpes is 2-deoxy-D-glucose (2-DG). Blough and Giuntoli (1979) compared 18 herpes sufferers treated with topical 2-DG to 18

treated with a placebo over a 3 week period of time. Lesions in the 2-DG group lasted an average of 4 days, while in the placebo group they lasted for 15 days. Two-DG provided rapid relief for symptoms of genital pain and pain during urination. On a 2 year follow-up 89% of first-time sufferers who were treated with 2-DG had not experienced a recurrence of overt symptoms and no adverse side effects were noted. The results of this study suggest that the drug not only relieves overt symptoms, but also decreases the possibility of later recurrence. The results of this study were questioned (Corey & Holmes, 1980) and further research on this drug with animal subjects has failed to demonstrate its effectiveness (Kern, Glasgow, Klein, & Friedman-Kein, 1982).

A number of drugs have been touted as having special treatment effect for herpes, but they appear to have serious side effects. Levamisole, which is an immunopotentiator and, therefore, was expected to bolster the ability of the body to ward off the virus, proved to be ineffective and harmful. Another drug, lithium, which is typically used in the treatment of manic-depressive disorders, has anecdotally been reported to be effective also. However, the Herpes Resource Center (an information support group of the American Social Health Association) is warning against the use of this drug and points out that no scientific studies have been conducted to substantiate its effect. A host of other "home remedies", including vitamin C, various ointments and salves, and ether, have been tried by frustrated patients, but have provided little real relief.

Psychological Effects

For a variety of reasons, genital herpes has gained a reputation for being a particularly devastating disease with regard to psychological sequelae. As the disease has increased in incidence, reports of the negative psychological consequences have increased as well. In much of the popular media, including newspapers, news weeklies, women's magazines, and television, the press is quick to pick up any report of adverse psychological effects associated uniquely with genital herpes. Ominous titles such as "The Heartbreak of Herpes," "The Terrible Curse of Herpes," and "The Misery of Herpes II" are headlines for stories in popular magazines, giving the reader some idea of the pessimistic reports which usually follow such titles. Unfortunately, virtually all of these reports are based on anecdotal evidence, and the premise that genital herpes has more severe psychological consequences than either viruses or other venereal diseases has not been investigated.

The intense interest in the psychological aspects of genital herpes appears to stem from five factors. First, since it is caused by a virus it is an incurable and recurrent disease. Even though it is incurable, it is not fatal. Therefore, it is necessary for people to make some kind of psychological adjustment to the disease, perhaps involving a process of going through variety of stages of different reactions to the disease. The level of difficulty or the amount of distress involved in making the adjustment has not been demonstrated and, at this point, is only a matter of conjecture.

Also since the disease is transmitted through sexual contact and since it presumably affects a person's later sexual relations, herpes is thought to be very disruptive with regard to interpersonal and sexual relations. In order to provide support for herpes patients, the Herpes Resources Center (HRC) (now 30,000 members strong) was founded. The HRC has sponsored a number of support groups throughout the country, and discussion of sexuality is reportedly one of the most popular topics. The questions of whether to inform one's potential sexual partner of the disease, and at what point in the relationship one would divulge this information, are thought to lead to a great deal of anxiety and negative self-scrutiny. An informal survey conducted by the HRC (cited in Van Gelder, 1982) found that 53% of the respondents (who were all HRC members) had avoided potential intimate situations, even when the virus was inactive, 35% had experienced impotence or diminished sex drive, 21% had been rejected by a potential sex partner after revealing the disease, and 9-10% had become totally sexually abstinent. The survey was not conducted in a scientific manner, and it involved self-selected, highly motivated participants. A more scientifically-designed, well-controlled study (Taylor, 1978) found that women with genital herpes did not report a lower frequency or less satisfaction in their sexual behavior than did normal controls. At any rate, herpes has attracted a great deal of attention because of its association with and possible impact on sexual behavior, which, in itself, has long been a subject of psychological study.

The seemingly-unpredictable nature of the disease may also increase the likelihood that patients will have emotional difficulty dealing with the disease. A number of factors are thought to precipitate an active recurrence, such as temperature elevation, emotional disturbance, premenstrual tension, or severe immunosuppression. Many researchers, however, have found (either in clinical practice or scientific research) that recurrences are not directly related to such specific factors (Kaufman, Gardner, Rawls, Dixon, & Young, 1973; Luborsky, Mintz, Brightman, & Katcher, 1976; Taylor, 1978; Vontver, Reeves, Rattray, Corey, Remington, Tolentino, Schweid, & Holmes, 1979). A number of support groups currently being conducted are based on the assumption that stress precipitates an outbreak and that reducing stress would concomitantly reduce outbreaks. However, the link between stress and recurrence, while widely assumed to be true, has not been clearly substantiated by scientific evidence. Two studies, one focusing on labial herpes (Luborsky et al., 1977) and one focusing on genital herpes (Taylor, 1978) failed to demonstrate that stress was a precipitant of herpes recurrence. In Taylor's research, the primary hypothesis was that a relationship exists between recent stressful events and the onset of herpetic lesions. In her comparison of five groups (herpes high recurrers, herpes low recurrers, patients with chronic vaginitis, patients with herpes and chronic vaginitis, and normal controls), using the Recent Experiences Survey to measure recent stress, she found no significant differences among the groups. In contrast to the results found in Taylor's study, Goldmeir and Johnson (1982)

found that herpes patients with high scores on a measure of "potential psychiatric disturbance" had a significantly higher recurrence rate than those who scored low on these factors. The study was poorly controlled and little information was provided concerning the choice of assessment instruments. Little real progress has been made in identifying specific precipitants of herpes recurrence although it is well-accepted that a generally suppressed immunological system provides an opportunity for the virus to become active again. In general, the course of the disease remains unpredictable, which is likely to cause some distress to the sufferers.

The demographic characteristics of herpes sufferers provide perhaps the best explanation for why genital herpes has received so much attention. While herpes attacks all segments of the general population, it is particularly obvious (probably because of the vocal nature of the group) in the young, affluent, well-educated groups of society. Richard Hamilton, a San Francisco physician who has written a popular book on herpes, The Herpes Book (1980), notes that sufferers are young, active people who "don't know how to be sick and find it difficult to accept the fact that medical science can provide no relief" (cited in VanGelder, 1982, p. 25). Hamilton found that "as a group, they're defensive, guilt-ridden, and angry ...and some of them are severely depressed" (cited in Van Gelder, 1982, p. 25). The Herpes Resource Center is a very active group, both in political activities (HRC lobbyists managed to save the VD-control program in the 1982 budget when so many other programs

were being slashed) and in social support functions. It is supported not only by the American Social Health Organization (its parent organization) but also by its thousands of activist members, who have been very outspoken in detailing the severe emotional consequences which they feel accompany the disease.

Finally, since so little is really known about the psychological components of herpes, the floor is open to a great deal of speculation and guesswork concerning the emotional impact of the disease. Some individuals claim that the psychological effects of herpes are debilitating and more severe and long-lasting than the physical ones (Seligman, 1980; Van Gelder, 1982). A picture is painted of an individual who is physically preoccupied, guilty, anxious, depressed, and sexually conflicted. Since these claims concerning the psychological aspects of genital herpes are not based on systematic scientific research, it is possible that the reports of herpes' psychological devastation have been greatly exaggerated, vastly overrated, and a bit premature. While an ever-growing field of medical literature exists detailing the physical aspects of the disease, very little psychological research has been conducted to elucidate the clinical picture of the herpes sufferer.

Psychological Aspects of Other Chronic Diseases

The psychological effects of other chronic, non-fatal diseases have been documented in the literature. Some examples of such diseases include End Stage Renal Disease (ESRD), Crohn's disease,

and diabetes. Each disease has similarities to genital herpes; however, notable differences exist also.

A review of the psychological problems accompanying renal disease has been provided by Mock (1975). Patients with ESRD are required to undergo dialysis approximately three times a week, which can be accomplished either at home or in-center. Each dialysis session requires 4 hours, during which time the patient is hooked up to a machine which "bathes" the blood supply. Many patients await a kidney transplant which, if forthcoming, would eliminate the need for dialysis. However, most patients live out their lives with the understanding that they must be dialyzed frequently. The most important psychological correlates of chronic dialysis appear to be dependency, social role disturbances, and the stress associated with economic pressures (Cummings, 1970; Abram, 1970). In one study of 14 children who either were undergoing dialysis or had received a transplant, serious adjustment problems were noted. These difficulties included depression, excessive dependency on parents, and strong feelings of social isolation (Khan, Herndon, & Ahmadian, 1971). Also, suicide and suicidal behavior occurs with a greater frequency in dialysis patients than in the general population. Many patients apparently do not feel that life on dialysis is an acceptable existence (Beard, 1971). In a study of 3,478 dialysis patients, the higher than average incidence of suicidal behavior was attributed to a combination of many factors--the patient often feels overwhelmed in the face of so many major life adjustments (Abram, Moore, & Westervelt, 1971). The ultimately lethal tendency of many patients

to be non-compliant concerning the special diet required of dialysis patients has been viewed within a suicide framework by some authors (Abram, 1968; Friedman, Goodwin, & Chaudhry, 1970).

In addition to the problems experienced by the patient, difficulties are also encountered by the family. Kidney disease affects the whole "system" rather than just the individual patient (Rubini & Goldman, 1968; Bridgford, 1971). Some of these difficulties include role reversals for family members, anxiety concerning treatment alternatives, and financial adjustment.

Crohn's disease (also called ileitis, granulomatous colitis, and regional enteritis) is a chronic disease of the intestines and small bowel which, while it has a fairly well-defined symptom picture, is puzzling to health professionals in terms of etiology and treatment. Crohn's disease is characterized by severe diarrhea and pain, typically accompanied by anorexia, fever, and anemia. Lesions to the perianal region, small bowel, intestines and colon are frequent secondary complications. The disease has a prevalence rate of approximately 75 per 100,000 and occurs most frequently in young adults, even though it is evident in all age groups. The pathogenesis of Crohn's disease is not clearly understood and is currently thought to be caused by a combination of invasive agents (i.e., viruses) and various "person" variables (e.g., diet, genetic factors) (Ward, 1977).

Much research attention has focused on the psychological aspects of Crohn's disease, which has been summarized by Gerbert (1980). Theorizing about the psychological aspects of Crohn's

appears to fall into three categories. Some researchers hypothesize that the disease is simply a physical expression of long-standing personality disturbance; others theorize that certain individuals have a genetic predisposition to bowel disease which can be triggered by stress; finally, others believe it is a purely physical disturbance which, in itself, causes psychological difficulties.

In her review of 16 studies focusing on the psychological aspects of Crohn's disease, Gerbert (1980) found that 13 of the studies provided some evidence for a positive relationship between psychological variables and the disease. Results from fairly well-controlled studies suggest that Crohn's patients are likely to be dependent, depressed, anxious and obsessive-compulsive (Cohn, Ledermen, & Shore, 1970; Ford, Glober, & Castelnuovo-Tedesco, 1969). The methodologies of the various studies do not allow for any conclusion about causation; that is, does the chronicity of the disease cause the psychological difficulties, or do the psychological difficulties contribute to development of the disease? At any rate, the psychological picture of a "typical" Crohn's sufferer is becoming increasingly clarified and refined.

Diabetes is another example of a chronic, life-long illness which, although it can have serious later complications, can be managed adequately by special attention to dietary and medical treatment requirements. Diabetes has been recognized as a pancreatic disorder for hundreds of years and has, therefore, been studied in great detail. It is characterized by glucose intolerance and

often requires the introduction of insulin into the body in order to offset the disruption in carbohydrate metabolism. Actually, there are over thirty different disorders which involve some form of diabetes: the differential diagnosis is made on the basis of a number of variables, including age of onset, need for insulin (versus need for dietary control alone), obesity, etc. (National Diabetes Data Group of the National Institutes of Health, 1979). The exact etiology of the disease is unclear, although it has some genetic basis which probably interacts with environmental factors (e.g., stress, weight gain, diet, etc.) to bring on the disease. It affects approximately 2% of the total population and usually occurs either in childhood or later adulthood.

Many of the psychological characteristics frequently associated with diabetes arise out of the constant medical monitoring required of the diabetic patient. In order to ensure proper maintenance of good health, the patient must be responsible for carrying out daily tasks, such as insulin injection, urine testing, dietary control, and physical exercise routines. The high visibility of many of these procedures serves as a constant reminder to the patient and family of the chronicity of the condition. The negative consequences of poor medical control usually reverberate throughout the entire family. Even when a patient is maintained adequately, the family often suffers in the presence of a diabetic patient. Crain, Sussman, and Weil (1966) measured marital functioning in parents of diabetic children and found a significant weakening in the marriages of parents of such children as compared to "normals". The illness

often becomes a focus of family life, with other relationships (marital, other siblings) suffering as a result.

Independence-dependence conflicts, which appear to be accentuated during adolescent years, often accompany diabetes (Sullivan, 1979). This can be seen in the tendency of many patients to "test" the prescribed medical regimen and to try new ways of coping with the diabetes. Using a self-report measure, Partridge, Gardner, Thompson, and Cherry (1972) found that teenage diabetics actually saw themselves as more independent than "normal" teenagers in dealing with routine, everyday matters.

It appears that for many diabetics, the necessary reliance on medical intervention and supervision creates a life-long concern about dependence versus independence. Also, problems of self-concept have been noted in the diabetic patient. Significant distortions of body image perception were found in adolescent diabetics, even though they had been given extensive information concerning their conditions (Kaufman & Hersher, 1971). Frequently associated with this confused self-concept is a feeling of depression concerning one's less than optimally functioning body (Sullivan, 1979). As with patients suffering from renal disease, non-compliance with dietary restrictions in diabetics leads to devastating, potentially fatal, consequences and is often viewed in a suicide framework.

It is likely that genital herpes has many characteristics in common with these other diseases. All are chronic disorders which require at least some medical care and ongoing monitoring. All of

the disorders result in a measurable degree of depression and other psychological effects. It is expected that herpes patients will also experience a significant degree of depression and anxiety. While many commonalities are likely to exist among chronic diseases, it is also likely that the psychological aspects of herpes will differ from those of other diseases in many ways since etiological and treatment considerations vary greatly. The sexually-transmitted, contagious, private nature of genital herpes sets it apart from many other chronic disorders. While there is some negative social stigma attached to any disease, herpes seems to have its own unique negative connotation, associated with being a venereal disease. Other sexually-transmitted diseases, such as trichomoniasis and hemophilis, are curable (Kaufman, 1980) and, therefore, the need to be able to cope on an on-going basis with the anticipated negative response from others is not a problem. Patients with these curable STDs are likely to experience some degree of distress at the time of diagnosis, but would not be expected to manifest any long-term effects such as isolation and somatic preoccupation. With the exception of herpes activists, herpes sufferers are characterized as being very private about their illnesses, which probably tends to minimize the extensive family involvement noted in other diseases, but which also limits any outlets for discussing the emotional impact of the disease. The contagious nature of the disease also is likely to lead to some avoidance of others which is possibly not so evident in many other chronic disorders. In some ways, genital herpes does not appear to be as "pervasive" an illness as many

others. Individuals with kidney disease or diabetes must often learn to plan all aspects of their lives around their illnesses, while the effects of herpes are perhaps more compartmentalized to sexual functioning. There is no threat of fatality from herpes nor is there any great financial burden or disruption in daily functioning. Negative effects are likely to be most evident in the sexual/interpersonal realm. Much conjecture can be made concerning the possible psychological aspects of herpes. At this point, however, there is virtually no solid data to substantiate any claims.

Purpose of the Present Study

The purpose of the present study was to provide clarification of the psychological picture of patients with genital herpes. For the purpose of the present study, five variables were selected for investigation: Somatization, Depression, Anxiety, Social Isolation, and Sexual Satisfaction. This study assessed the occurrence of these variables in herpes patients as compared to other patient groups and normal controls. Since the negative psychological aspects of herpes are believed to accrue over time, the primary group under investigation was patients who had recurrent herpes for longer than 6 months. Other groups included patients who had recently been diagnosed as having herpes (primary infection), patients with curable sexually-transmitted diseases (trichomoniasis and hemophilis), and normal controls. It was believed that both the patient group with primary herpes and the group with curable STDs would exhibit some of the negative emotional states, but not to the

extent of the long-term, recurrent herpes group. Primary herpes patients were not expected to have had enough experience with the aversive day-to-day aspects of coping with the disease to evidence severe psychological reactions, even though they would have been informed about the potential long-term consequences. The patients with curable STDs were likely to have experienced some short-term distress, but the extent and severity of this reaction was not expected to have been as great as in the recurrent herpes patients.

It was hypothesized that:

1. A significant relationship would exist between somatic preoccupation and recurrence of genital herpes. Specifically, individuals with recurrent herpes were expected to be significantly more somatically preoccupied than individuals with primary herpes, individuals with curable STDs, and normal controls. It was also expected that individuals with primary herpes and individuals with curable sexually-transmitted diseases would be significantly more somatically preoccupied than normal controls.
2. A significant relationship would exist between depression and recurrent herpes. Specifically, it was hypothesized that individuals with recurrent herpes would be significantly more depressed than individuals with primary herpes, individuals with curable STDs, and normal controls. It was also expected that individuals with primary herpes and individuals with curable STDs would be significantly more depressed than normals.

3. A significant relationship would exist between anxiety and recurrent genital herpes. Specifically, it was hypothesized that individuals with recurrent herpes would be significantly more anxious than individuals with primary herpes, individuals with curable STDs, and normal controls. It was also expected that individuals with primary herpes and individuals with curable STDs would be significantly more anxious than normal controls.
4. A significant relationship would exist between interpersonal withdrawal and recurrent herpes. Specifically, it was hypothesized that individuals with recurrent herpes would be significantly more socially withdrawn than individuals with primary herpes, individuals with curable STDs, and normal controls.
5. A significant relationship would exist between sexual satisfaction and recurrent herpes. Specifically, it was expected that individuals with recurrent herpes would experience significantly less sexual satisfaction than individuals with primary herpes, individuals with curable STDs, and normal controls.

CHAPTER II

METHODS AND PROCEDURES

Subjects

A total of 75 gynecology patients participated in the study. They were selected and grouped, as follows.

Group 1: Recurrent Herpes Group. The 20 patients in this group were volunteers from the Herpes Clinic at Baylor College of Medicine. Each patient had received a diagnosis of genital herpes (confirmed through culture or antibody titre), and had experienced recurrences for at least six months. Recruitment procedures will be detailed in a later discussion.

Group 2: Primary Herpes Group. The 16 patients in this group were also volunteers from the Herpes Clinic at Baylor College of Medicine. Each patient had received within the 2 weeks prior to selection a diagnosis of primary herpes infection, with no prior history of herpes infection. Diagnosis was confirmed by culture and by serum antibody testing.

Group 3: Curable Sexually Transmitted Disease Group. The 19 patients in this group were selected from the private practice of a Houston gynecologist. Each patient had received a diagnosis, within 2 weeks prior to selection for the study, of hemophilis or trichomoniasis (both curable sexually-transmitted diseases). No patients were included who had a history of herpes.

Group 4: Normal Control Group. The 20 patients in this group were selected from the private practice of a Houston gynecologist.

Visits to the doctor were of a routine nature (yearly check-up, refill of birth control pills, etc.). No patients were included who had a history of genital herpes.

All subjects were between the ages of 18 and 42, with a mean age of 29.36 years. Their ethnic identification was predominantly white, with 57 Caucasians, 8 Blacks, 6 Hispanics and 3 classified as Other. Regarding marital status, 26.7% of the groups was married, 30.7% was single, 22.7% was divorced, 13.3% was cohabiting with a male, 2.7% was separated, and 1.3% was widowed. The group was generally well-educated, with a mean of 15.12 years in school. Forty-eight percent of the group was Protestant, 22.7% was Catholic, 13.3% was classified as Other, 13.3% claimed no religious affiliation, and no participant reported Jewish affiliation. The sample was a middle-to-upper-middle class group with respect to income: 26.7% reported an income greater than \$25,000, 40% earned between \$15,000 and \$25,000, 20% reported an income between \$10,000 and \$15,000, 6.7% reported an income between \$5,000 and \$10,000, and 5.3% earned less than \$5,000. For a breakdown of demographic variables by group, please see Table 1.

Procedure

Procedures for conducting the study were identical for Groups 1, 2, and 4. After visiting the Herpes Clinic or the doctor's office, patients were contacted by phone to inquire about their willingness to participate in the study. They were informed that a research study was being conducted of women being seen for various

Table 1

Demographic Variables by Group

	Group 1 (N = 20) Freq. %		Group 2 (N = 16) Freq. %		Group 3 (N = 19) Freq. %		Group 4 (N = 20) Freq. %	
<u>Age</u>								
20-24	2	10	6	37.6	2	10.5	7	35
25-29	5	25	4	25.1	5	26.4	11	55
30-35	5	25	4	25.1	8	42.1	1	5
36-42	8	40	2	12.6	3	15.8	1	5
<u>Race</u>								
White	17	85	12	75	16	84.2	12	60
Black	1	5	3	18.8	0	0	4	20
Hispanic	2	10	1	0	2	10.5	1	5
Other	0	0	0	0	0	0	3	15
<u>Marital Status</u>								
Married	5	25	1	6.3	9	47.4	5	25
Cohabiting	2	10	4	25	0	0	4	20
Single	7	35	5	31.3	3	15.8	8	40
Divorced	5	25	5	31.3	4	21.1	3	15
Widowed	1	5	0	0	0	0	0	0
Separated	0	0	0	0	2	10.1	0	0
<u>Marriages</u>								
0	8	40	8	50	3	15.8	10	50
1	7	35	6	37.5	10	52.6	9	45
2	4	20	1	6.3	5	26.3	1	5
3	1	5	0	0	0	0	0	0
<u>Children</u>								
0	11	55	10	62.5	7	36.8	13	65
1	4	20	4	25	4	21.1	5	25
2	3	15	2	12.5	7	36.8	2	10
3	1	5	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0
>5	1	5	0	0	0	0	0	0
<u>Education Level</u>								
<12 years	0	0	1	6.3	9	47.4	0	0
12-14 years	7	35	5	31.3	9	47.4	7	35
15-16 years	9	45	5	31.3	6	31.6	7	35
>16 years	4	20	4	25.1	3	15.8	6	30
<u>Religion</u>								
Catholic	5	25	1	6.3	7	36.8	4	20
Protestant	9	45	9	56.3	5	26.3	13	65
Other	1	5	3	18.8	4	21.1	2	10
None	5	25	2	12.5	2	10.5	1	5
<u>SES</u>								
5,000	0	0	3	18.8	0	0	1	5
5,001-10,000	1	5	2	12.5	0	0	2	10
10,001-15,000	5	25	2	12.5	2	10.5	6	30
15,001-25,000	6	30	5	31.3	9	47.4	10	50
>25,000	8	40	4	25.0	7	36.8	1	5

gynecological problems. No mention was made of the specific gynecological problems being investigated. Subjects were told that they would be required to complete a test which would require approximately 1 hour of their time. They were also told that all results would be compiled anonymously and confidentially. If willing to participate in the study, they were sent a packet containing a cover letter (see Appendix A), a demographic and sexual history questionnaire (see Appendix B), Minnesota Multiphasic Personality Inventory (MMPI) booklet and answer sheet, and a pre-stamped return envelope. Patients were asked to return the materials as quickly as possible. If the packet was not returned within 2 weeks, a reminder letter was sent (see Appendix C). Patients in Group 3 (curable STDs) followed a slightly different procedure. Because of the concerns of the physician regarding opening his patient files, all procedures were handled directly by his physician's assistant. Patients were asked during the office visit if they would be available to participate. If agreeable, they were given the packet at that time and asked to return it by mail. Reminder letters were sent 2 weeks after packets were given.

Statistical Analysis

For each subject the following information was coded for analysis: subject number and group membership, demographic information, disease history, sexual satisfaction and history information, and MMPI scores (for all scales in T-scores). Computer analysis of the data was conducted using Statistical Package for the Social

Sciences. One-way analyses of variance were conducted for all variables by group. Also, multiple range tests (Student Newman-Keuls) were conducted for each significant one-way ANOVA to test for pairwise differences between groups. Supplementary analyses included FREQUENCIES and T-TESTS.

CHAPTER III

RESULTS

Response/Return Rate

Forty-five percent of the primary herpes group returned the packet, 56% of the curable STD group returned the packet, and 49% of the normal control group returned the packet. The recurrent herpes group, however, returned the packet at a much higher rate. Nearly 3/4 (72.5%) of this group completed the questionnaire packets and returned them.

Demographic Variables by Group

Significant differences were noted among the groups on age $F(3,70) = 5.674$, $p = .001$. In a test of pairwise differences between groups, it was determined that Group 4 (normal controls) was significantly younger than both Groups 1 (recurrent herpes) and Group 3 (primary herpes) and Group 4. No significant differences were noted among the groups on number of marriages, number of children, or on number of years in school. For a listing of the means and standard deviations of these variables by group, see Table 2.

Analyses of the Major Hypotheses

Differences in somatic preoccupation were not noted among the groups. A univariate analysis of variance for Scale 1 (Hypochondriasis) on the MMPI by group proved not significant $F(3, 71) = .383$, $p = .765$.

Table 2

Means and Standard Deviations of Demographic Variables

	Group 1 (N = 20)		Group 2 (N = 15)		Group 3 (N = 18)		Group 4 (N = 20)	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Age	32.10	5.71	28.12	6.24	31.16	4.77	26.00	3.96
Number of Marriages	.95	1.05	.53	.63	1.11	.68	.55	.60
Number of Children	.90	1.33	.50	.73	1.00	.91	.45	.69
Years in School	15.25	2.02	14.80	2.76	14.72	2.11	15.60	2.52

Hypothesized differences between the four groups on depression were not supported by the analysis. A univariate analysis of variance for Scale 2 (Depression) of the MMPI by group proved not significant, $F(3, 71) = .130, p = .942$.

Differences between the groups on a measure of anxiety was not found. A univariate analysis of variance for Scale 7 (Psychasthenia) by group proved not significant $F(3, 71) = .969, p = .412$.

The prediction of differences between the groups on a measure of social withdrawal as a function of personal distress was not supported. A univariate analysis of variance of Scale 0 (Social Introversion) by group was not demonstrated to be significant, $F(3, 71) = .888, p = .451$.

Significant differences among groups on a measure of sexual satisfaction were noted. A univariate analysis of variance of sexual satisfaction score (based on a 5-point rating scale) by group proved significant $F(3, 68) = 8.23, p = .001$. In a test of pairwise differences between groups, it was determined that the recurrent herpes group reported significantly less sexual satisfaction than each of the three other groups.

For a listing of means and standard deviations of the variables analyzed in the major hypotheses, see Table 3.

Analysis of Other MMPI Scales

In the separate analyses of variances of all other MMPI scales, none proved significant (see Table 4). For a comparative MMPI

Table 3

Means and Standard Deviations on Hs, D, Pt, Si,
Sexual Satisfaction by Group

	Group 1 (N = 20)		Group 2 (N = 16)		Group 3 (N = 19)		Group 4 (N = 21)	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Hs	50.85	7.33	52.94	8.89	50.16	6.53	50.80	9.14
D	53.90	9.30	53.81	7.92	52.74	9.60	54.85	13.96
Pt	53.70	6.19	55.81	7.07	51.10	8.20	53.05	10.51
Si	51.65	8.62	53.56	10.91	48.26	10.50	51.15	9.20
Sex Satisfaction	2.79	1.18	1.62	.62	1.53	.62	2.00	.79

Table 4
T-score Elevations Above 70

	Group 1 (N = 20)	Group 2 (N = 16)	Group 3 (N = 19)	Group 4 (N = 21)
L	0	0	0	0
F	2	1	0	0
K	3	1	0	0
Hs	0	1	1	2
D	0	1	1	2
Hy	1	4	2	1
Pd	3	3	0	7
Mf	0	0	0	0
Pa	3	2	0	3
Pt	0	0	0	2
Sc	1	2	1	2
Ma	1	3	3	3
Si	1	1	1	0

profile of all four groups, see Figure 1, all MMPI scales were analyzed for the numbers of individuals in each group who had elevated scores above 70, but no apparent difference among groups were noted. See Table 5 for a summary of T-score elevations.

T-Test Between Blacks and Whites on MMPI Scores

Prior to analyzing MMPI scores by group, t-tests between black and white respondents were computed for the 13 MMPI scales. There were no significant differences between the two groups on any scale (see Table 6). On sexual history questions, a significant difference was noted between blacks and whites on the question concerning number of sex partners $t(53.4) = 3.37$, $p = .001$. The white respondents reported a greater number of sex partners ($M = 13.59$) than did the black respondents ($M = 5.75$). No significant differences between the two groups were found on the other sexual history questions (see Table 7).

Sexual History

Of the three items investigating sexual satisfaction and history, a significant difference between the groups was noted on the question concerning current sexual satisfaction, as reported earlier. For a listing of frequencies and percentages of sexual satisfaction, see Table 8. Age of first intercourse did not differ significantly among women in the four groups $F(3, 68) = .309$, $p = <.818$. Patients with primary genital herpes had first intercourse

Figure 1: Comparative MMPI Profiles

Group 1 _____

Group 2 - - - - -

Group 3

Group 4 ooooooo

Table 5

Means, Standard Deviations, F-ratio and F-probabilities of
L, F, K, Hy, Pd, Mf, Pa, Sc, M

	Group 1 (N = 20)		Group 2 (N = 16)		Group 3 (N = 19)		Group 4 (N = 21)		F-ratio	F-prob
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD		
L	49.10	5.99	48.00	4.37	46.42	5.43	46.20	5.59	1.25	.298
F	56.40	7.83	54.06	8.40	52.89	6.34	54.20	6.87	.774	.513
K	55.05	9.64	52.62	9.72	52.79	8.49	49.60	6.90	1.318	.273
Hy	53.90	11.74	60.62	10.90	54.58	8.85	53.90	8.92	1.74	.160
Pd	57.90	11.42	59.62	11.65	53.58	8.20	60.40	12.49	1.43	.240
Mf	46.25	6.49	48.50	7.20	43.10	10.01	49.35	6.99	2.42	.073
Pa	58.50	7.96	58.25	9.68	56.10	6.97	60.40	11.49	.712	.540
Sc	58.25	10.01	57.00	9.80	52.10	8.47	56.20	12.67	1.25	.290
Ma	55.60	7.53	57.87	7.90	59.47	9.53	59.25	11.46	.72	.540

Table 6

T-tests on MMPI Scores (Whites vs. Blacks)

	Whites (N = 57)		Blacks (N =8)		T Value	Prob.
	$\bar{X}$	SD	$\bar{X}$	SD		
L	47.25	5.25	48.25	5.97	.50	.620
F	54.07	7.16	53.87	7.92	.07	.943
K	52.61	9.13	52.62	8.16	.00	.997
Hs	51.28	7.98	53.37	8.19	.69	.491
D	53.87	10.88	54.12	10.13	.57	.569
Hy	55.81	11.18	58.12	6.03	.57	.569
Pd	57.37	11.17	62.37	11.72	1.18	.242
Mf	46.30	7.68	50.75	6.20	1.57	.122
Pa	58.46	8.87	58.62	11.44	.05	.961
Pt	53.54	8.08	54.37	7.82	.27	.786
Sc	55.32	9.92	59.37	9.07	1.09	.278
Ma	58.25	8.92	58.12	8.17	.04	.971
Si	50.77	10.01	52.37	8.31	.43	.667

Table 7

T-tests on Sexual Questions (Whites vs. Blacks)

	Whites (N = 55)		Blacks (N = 8)		T Value	Prob.
	$\bar{X}$	SD	$\bar{X}$	SD		
Partners	13.59	14.99	5.75	3.15	3.37	.001
Age-First Sex	18.24	2.28	15.87	5.01	1.31	.232
Sexual Satisfaction	2.00	.96	2.12	.99	.34	.733

Table 8
Frequencies and Percentages of Sexual Satisfaction

	Group 1 (N = 16)		Group 2 (N = 19)		Group 3 (N = 17)		Group 4 (N = 20)	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Very Satisfied	3	15	7	43.8	9	47.4	5	25
Satisfied	5	25	8	50.0	7	36.8	11	55
Neither	5	25	1	6.3	1	5.3	3	15
Unsatisfied	5	25	0	0	0	0	0	0
Very Unsatisfied	1	5	0	0	0	0	0	0

at a mean age of 17.4 years, patients with recurrent genital herpes had sex initially at a mean age of 18.3 years, patients with curable sexually-transmitted diseases had first intercourse at a mean age of 17.8 years, and normal controls had first sex at a mean age of 17.8 years. Regarding the total number of sex partners, an analysis of variance was performed for whites only, considering the significant differences noted between blacks and whites on the previously-reported T-test. No significant differences were noted between the groups $F(3, 50) = .300, p = <.825$. For patients with recurrent genital herpes, a mean total of 13.5 sex partners was reported. Patients with primary genital herpes reported a mean total of 16.18 partners, patients with curable sexually-transmitted diseases reported a mean total of 14.43 sex partners, and normal controls reported a mean total of 10.33 partners. For a listing of frequencies and percentages of sex partners by group, see Table 9.

Disease History

No evident differences were noted among the groups on prior herpes virus or sexually-transmitted diseases. Between 75-85% of the members of each group had chickenpox (another disease caused by a herpes virus). Only two people in the entire sample reported having had shingles (one in the recurrent herpes group and one in the curable sexually-transmitted disease group), another herpes virus disease. Between 10 and 21.1% of the members of each group had previously had cold sores. No patient reported ever having had

Table 9

Frequencies and Percentages of Number of Sex Partners

	Group 1		Group 2		Group 3		Group 4	
Partners	Freq.	%	Freq.	%	Freq.	%	Freq.	%
	(N = 16)		(N = 20)		(N = 16)		(N = 20)	
1-3	4	20	3	18.8	3	15.9	3	15
4-7	5	25	3	18.8	4	21.0	11	55
8-11	7	35	4	25.1	2	10.6	4	20
12-15	1	5	0	0	2	10.5	1	5
16-19	0	0	0	0	1	5.3	0	0
20-29	1	5	1	6.3	2	10.6	0	0
30-49	0	0	3	18.9	1	5.3	0	0
<u>≥</u> 50	2	10	0	0	1	5.3	1	5

syphilis. The frequency of gonorrhea was also quite low, with one case in the primary herpes group, four in the curable STD group, and none in the recurrent herpes group or the normal control group. Thirty-one percent of the primary herpes group had previously had trichomoniasis or hemophilis, 20% of the recurrent group reported episodes of these curable STDs, and 15% of the normal control group reported these curable sexually-transmitted diseases. For detailed frequencies and percentages by group, see Table 10.

Table 10

Frequencies and Percentages of Other Diseases

	Group 1		Group 2		Group 3		Group 4	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
	(N = 16)		(N = 20)		(N = 19)		(N = 20)	
Chicken Pox	17	85	12	75	15	78.9	0	75
Shingles	1	5	0	0	0	0	0	0
Cold Sores	2	10	3	18.8	4	21.1	3	15
Gonorrhea	0	0	1	6.3	4	21.1	0	0
Syphillis	0	0	0	0	0	0	0	0
Trichomoniasis	2	10	4	25	7	36.9	2	10
Hemophilis	2	10	1	6.3	13	68.4	1	5

CHAPTER IV

SUMMARY AND CONCLUSIONS

Return Rate

The return rate for the various groups ranged from 45% to 72.5%. Three of the groups (Primary Herpes, Curable STDs, and Normal Controls respectively) averaged around 50%, but the recurrent herpes group averaged 72.5%. This difference in return rate is difficult to explain. The procedure for disseminating questionnaire packets was virtually the same for all groups. All subjects were informed that they were being asked to participate in the study because women from various gynecological groups were being studied. It was not mentioned that they were being asked to participate because they had herpes per se. In a previous study (Taylor, 1978) in which subjects were recruited on the basis of having herpes, the author noted that she obtained a surprisingly high rate of response and cooperation. This can be understood in terms of the participants' desire for help for their own specific problem. A similar dynamic might have been at work in the current study since participants could surmise that they had been chosen because of their visits to the Herpes Clinic. Perhaps the recurrent group's higher level of concern caused them to respond in greater numbers.

Group Differences on Age

The results of the analysis of variance performed on the factor of age of the participants indicated that the normal control group

was significantly younger than both the recurrent herpes group and the curable sexually-transmitted disease group. The primary herpes group, the recurrent herpes group, and the curable sexually-transmitted disease group were not significantly different on age. While the age differences among the groups do not appear to alter the interpretations made on the results of this study, the differences do necessitate the use of some caution in making conclusive statements. Concerning the relevant MMPI hypotheses (Hypochondriasis, Depression, Anxiety, and Social Isolation), the age differences should not affect the individual scale interpretations. While some factors, such as race and socioeconomic level, are thought to affect MMPI scores, age is not a significant factor unless participants are included who are much older than those in the present study.

Concerning the sexual history question, it can be hypothesized that age clearly affects the number of previous sex partners. Also, it is a possibility that age affects the degree of sexual satisfaction a person reports. On the question concerning number of sex partners, no significant differences were evident among the groups. Since no differences on age were noted among Groups 1, 2, and 3, no further discussion is needed concerning these groups and number of sex partners. Since the normal control group was significantly younger than the recurrent herpes group and the curable sexually-transmitted disease group, further discussion is warranted. Since the number of previous sex partners is a factor which can only increase with age, and since no significant differences were noted

among the groups on this factor, it becomes apparent that, if the groups were equated on age, the outcome might be that the normal control group had more previous sex partners than the other groups (which would be contrary to some reports stating that individuals with herpes tend to engage in more sexual activity than normals). With the results of the current study, it is clear that individuals with herpes do not have a history of a greater number of sex partners than individuals with curable sexually-transmitted diseases. Also, they do not have a greater number of sex partners than the younger group of normal controls.

The factor of age can also be thought to affect sexual satisfaction. Since three of the groups (recurrent herpes, primary herpes, and curable STDs) being investigated in this study are equated on age, the current findings can be interpreted. The recurrent herpes group was clearly less sexually satisfied than either the primary herpes group or the curable sexually-transmitted disease group. Comparisons between the recurrent herpes group and the normal control group (which is significantly younger) must be made more cautiously. The recurrent herpes group was significantly less sexually satisfied than the normal control group, yet the age factor might have served as a moderator variable. It is possible that younger people report a greater sexual satisfaction than do older individuals.

Discussion of Major MMPI Hypotheses

It is clearly evident from the results of this study that no relationship exists between psychological problems as measured by the MMPI and recurrent herpes. Several explanations exist for the results obtained in this study. The most obvious explanation is that herpes patients as a group simply do not experience devastating psychopathological consequences as a result of having the disease nor do they possess any particular psychopathological predisposition which would lead them to have high recurrences of the disease. For the four MMPI scales analyzed for the major hypotheses, recurrent herpes patients fell into a basically healthy range of functioning.

On Scale 1 (Hypochondriasis) it was expected that subjects would show elevations on this scale on the basis of having a real physical illness. Persons who are physically ill usually achieve a moderate elevation (T-score of 60-65) which reflects a self-focus stemming from a real physical problem (Greene, 1980). In the present study, however, the recurrent herpes group obtained a T-score of 50.85, an elevation which warrants no interpretation except to say that they experience a typical number of physical complaints.

It was expected that the most robust relationship between psychological disturbance and herpes would be revealed by elevations on Scale 2 (Depression). A T-score elevation of at least 70 was expected, which would have reflected the depression, guilt, and self-deprecating behaviors hypothesized by many authors. Not only

was there no relationship between Scale 2 and herpes, but the actual mean elevation for the recurrent herpes group was, once again, in the normal range (T-score = 53.90). While many of the MMPI scales represent characterological traits, which would perhaps be relatively unaffected by having herpes, Scale 2 is thought to measure reactive or exogenous depression. Obviously, if some reactive depression were present as a result of having herpes, it was not strong enough or long-lasting enough to warrant elevations on this scale. The same holds true for the primary herpes and curable sexually-transmitted disease groups. No reactive depression was noted for these groups (Mean T-scoree = 53.81; Mean T-score = 54.85, respectively).

Scale 7 (Psychastenia) generally identifies a neurotic syndrome characterized by obsessive-compulsive features, including self-criticism, difficulties in concentration, guilt feelings, and abnormal fears. While it is primarily a measure of trait anxiety, it is somewhat responsive to situational stress as well (Greene, 1980). One of the frequent qualities ascribed by authors to herpes patients is an unrelenting anxiety accompanied by obsessive self-doubt and introspection. These qualities were not found in the present study. The elevations on Scale 7 achieved by the recurrent herpes group (T-score = 53.70) indicated a group which is generally well able to handle the vicissitudes of everyday living without undue tension or anxiety.

Scale 0 (Social Introversion) is the one MMPI scale which is not necessarily tied to psychopathology, but, rather, reflects a behavioral or attitudinal orientation. Elevation on this scale can be achieved for a variety of reasons: schizoid withdrawal, neurotic withdrawal, self-deprecation as a result of personal distress, or introverted orientation (Greene, 1980). It was hypothesized that recurrent herpes patients would show elevations on this scale as a result of interpersonal distress. In the previously mentioned Herpes Resource Center study (cited in Van Gelder, 1982), avoidance of interpersonal situations was the most commonly cited behavioral consequence of having the disease. In the present study, the avoidance of social contact was not detected. It is quite likely that this avoidance is limited to situations in which a sexual involvement is a possibility. The subjects in the recurrent herpes group in this study reported an adequate balance of socially extroverted and introverted behaviors and attitudes (T-score = 51.65).

The claims made in the popular press concerning the exaggerated psychological reactions experienced by long-term herpes patients were not supported in the current study. This study partially supports, however, the findings of another scientific study concerning the relationship between psychological factors and herpes (Taylor, 1980). In the Taylor study, an analysis of the relationship between stress and the recurrence of herpes proved not significant. Both test information (the Life History Questionnaire) and interview information were used in the analysis of the relationship

between stress and herpes recurrence. While objective test data revealed no differences between groups on stress levels, the women with recurrent herpes retrospectively reported stress associated with the onset of a recurrence in the interview data. In view of the results of the current study, it is highly likely that Taylor's conclusion about the relationship between herpes and stress was confounded by the retrospective nature of the interview process.

The results of the current study tend to contradict the results of a study performed in Great Britain (Goldmeir & Johnson, 1982). In the Goldmeir and Johnson study, 58 patients with first attacks of genital herpes were given the General Health Questionnaire (GHQ) and were then monitored for recurrence rates for 30 weeks. The GHQ is a brief questionnaire which is aimed at differentiating "potential psychiatric cases" from others. Individuals who achieve a score of 12 or more fall into the "psychiatric problem" category; these patients are described as being depressed, anxious, and hypochondriacal, and as experiencing feelings of inadequacy. Fully one-half of their patients fell into the "potential psychiatric case" category. The recurrence rates showed that the 29 patients with GHQ scores above 12 had a significantly higher recurrence rate than the 29 patients who scored less than 12. This would indicate that individuals with a psychiatric disturbance were predisposed to experience more recurrent outbreaks. However, 13 patients who were lost to follow-up were included in the analysis, yet no information was given concerning how they were included or what the GHQ scores

were for this group. It would seem logical that these patients would simply be excluded from the analysis, as it is a bit baffling how recurrence rates (which would be needed to perform the analysis) were calculated for this group. The authors of the study concluded that a direct relationship existed between psychiatric disturbance and recurrence rates. That conclusion seems questionable on the basis of their statistical analysis. Notwithstanding this concern about statistical procedures, some comparison can be drawn between the Goldmeir and Johnson study and the current study.

It would be helpful to obtain more information on the GHQ, the instrument used in the Goldmeir and Johnson study. Little information could be found on this instrument, with the exception of an early article by the authors of the test explaining the reason for using the instrument (Goldberg & Blackwell, 1970). The authors explained that their development of the GHQ was an attempt to be able to compare rates of reactive psychiatric disturbance among various medical practices. In their research with the GHQ, they found a high rate of reactive depression in medical practices (no specific incidence rates were given). At 6 month follow-up after consultation for medical problems, 66% of those individuals who had previously scored high on the GHQ scored in a healthy range of psychological functioning. According to Goldberg and Blackwell, the developers of the GHQ, the test measures brief psychological reactions to the presence of a medical illness.

In view of this, it can be concluded from the later study by Goldmeir and Johnson that half of the herpes patients experienced a reactive psychological disturbance as a result of having the disease. This reactive disturbance was not seen in the present study, as demonstrated by the lack of significant differences among groups on any of the MMPI scales. This discrepancy is somewhat difficult to explain. In the past, the MMPI has proven to be sensitive in detecting reactive disturbances in both psychosomatically- and physically-based medical illnesses (Renaer, Vertommen, Nijs, Wagemans, & Van Hemelrijck, 1979; Castelnuovo-Tedesco & Krout, 1970). In the Renaer et al. study, in which women with chronic pelvic pain (of either physical or psychogenic origin) were evaluated using the MMPI, clear heightening of the hypochondriasis, depression, psychastenia, and social introversion scales were noted as compared to normal controls. It is perhaps possible that, even though scores on the MMPI fluctuate somewhat due to transient problems (particularly on Scale 2), the GHQ is more sensitive in detecting brief reactive changes in personality functioning. It is also possible that, since so little validity information is available for the GHQ, the GHQ has a high rate of false positives in determining "psychiatric cases."

Sexual Satisfaction

The results of the present study indicate that individuals with recurrent herpes experience less sexual satisfaction than other

groups. This finding, in conjunction with the non-significant findings regarding psychological disturbance, indicates that recurrent herpes patients experience disturbance in a very circumscribed area of living. It should be noted that the mean score for the recurrent herpes group did not fall into the unsatisfactory range. On the average, women in this group reported that their sex lives were neither satisfactory nor unsatisfactory. This somewhat non-committal attitude regarding sexual satisfaction was also reflected in the comments made in response to this question. No subjects in any of the other groups inserted comments on this question, but in the recurrent herpes group, some people checked a response, but added a parenthetical response such as "Sex is okay when I have it." The most striking effects of having herpes appear to be limited to the sexual realm. Detailed questions concerning specific current sexual behaviors and attitudes were not included in this study, but would be a fruitful area of future investigation. One might expect that the concern regarding sexual functioning would be reflected in some type of psychological reaction, such as depression. However, this was not the case in the current study. After speaking with a number of herpes patients in groups at the Herpes Clinic, an attitude of putting sexual activity "on hold" seems to be a common response to questions regarding sex. These women do not seem to be hopeless about future sexual activity and appear to rely heavily on the belief that a cure for herpes will soon be available. This belief apparently allows the patients to retain a healthy, optimistic attitude about the future and prevents them from becoming

depressed and hopeless. This belief in the possibility of finding a cure is not entirely defensive. A recent news broadcast reported on a scientific study on a vaccine for preventing herpes; the contents of this research have not yet been published and cannot, therefore, be documented. A vaccine would not cure current cases of herpes, but would prevent transmission through sexual contact, thereby decreasing the need for sexual abstinence.

The lowered sexual satisfaction in women with recurrent herpes found in this study was not found in the Taylor study. In her study comparing high-recurrent herpes patients, low-recurrent herpes patients, patient with herpes and chronic vaginitis, and normal controls, no differences were detected among groups, and a high degree of sexual satisfaction was reported by all groups. It is highly likely that the increased knowledge concerning sexual transmission of the disease has had a progressively negative impact on the sexual functioning of individual with herpes. In the 6 years since the Taylor study was performed, scientific evidence has demonstrated that the virus can be transmitted in the absence of active symptomatology. This finding has gained widespread attention, and it is likely that individuals with herpes have responded to this knowledge with increasing reservations regarding sexual contact.

Recommendation for Psychological Intervention

It can be seen from the current study that there is no psychological disturbance which is specific to herpes patients. Overall,

herpes patients appear to be functioning well and coping adequately. Any difficulties experienced by herpes patients appear to be limited to the sexual realm.

The results of the current study are not in keeping with the reports being distributed in the popular press concerning the devastating psychological consequences of herpes. It is certainly true that, even in the present study, certain individuals reported experiencing significant depression, anxiety, and social withdrawal. It is also true, however, that individual reports of psychological difficulty appeared in all groups. The important point is that the incidence of psychopathology was no greater for the recurrent herpes group than it was for any other group. It is possible that there is a certain subgroup of recurrent herpes patients who experience very severe cases of the disease which could potentially cause severe emotional reactions; however, these reactions were not evident in the current study.

Concerning the need for any type of psychological intervention, the most helpful technique would appear to be brief counseling which would involve a primarily educational approach and would focus on the sexual and interpersonal aspects of the disease. For individuals requesting therapy aimed at helping them cope with having the disease, it would be prudent for the therapist to do a complete evaluation of the patient's current and past psychological functioning. Many patients might require only short-term counseling aimed at education, while others might be using discussion of problems

encountered related to herpes as a bridge into discussing more long-standing psychological concerns. In light of the findings from the current study, it would appear even more pressing for the primary physician to take a few minutes to discuss both the specific physical consequences of the disease and possible ways of dealing with the problem in terms of sexual activity. Since significant psychological disturbance is not a common reaction to having the disease, the reassurance provided by the physician could go a long way in offsetting temporary confusion based on misinformation.

Recommendations for Further Research

In the current study, the search for specific psychological variables associated with herpes did not result in the discovery of any psychopathology endemic to recurrent herpes patients. It can be concluded, from the current study, that recurrent herpes patients do not have a particular personality pattern which would predispose them to contracting the virus or experiencing recurrences. Also, to the extent that the MMPI is responsive to reactive disturbance, no significant negative reaction states were noted. In its use as a personality test, however, the MMPI is not designed to be a test of primarily reactive disturbance. Scale 2 (depression) does fluctuate over time depending on the mood state of the individual, but, in general, the overall test is a measure of more stabilized personality traits. It could prove fruitful to assess the presence of various psychological states, such as depression or anxiety, using an instrument specifically designed to detect reactive states.

From the results of the current study, the area of research which deserves more detailed study is the sexual functioning of individuals with herpes. Since individuals with herpes experience a decrement in sexual satisfaction, it would be interesting to explore this area more fully to find out more about the sexual attitudes and behaviors of individuals with herpes. It is quite possible that the effects of herpes are very compartmentalized and focus on problems in the sexual realm. Substantiating this hypothesis and then developing effective means of coping with difficulties in the sexual area (if demonstrated to be a serious problem) would be appropriate avenues for further research.

Finally, as mentioned briefly in earlier discussion, it is possible that a subset of patients with herpes experience particularly severe physical reactions to herpes. As more is known about herpes, it is becoming clear that the rate and severity of recurrent episodes can vary greatly from person to person. Some individuals experience recurrences infrequently and in a mild form, while others seem to have continual outbreaks. By separating mild recurrers from severe recurrers, psychological problems might become evident in the more severe cases.

REFERENCES

- Abram, H.S. (1968). The psychiatrist, the treatment of chronic renal failure, and the prolongation of life. American Journal of Psychiatry, 124, 1351-1358.
- Abram, H.S. (1970). Survival by machine: the psychological stress of chronic hemodialysis. Psychiatry in Medicine, 1, 37-51.
- Abram, H.S., Moore, G.L., & Westervelt, F.B. (1971). Suicide behavior in chronic dialysis patients. American Journal of Psychiatry, 127, 1199-1204.
- Adam, E., Dreesman, G.E., Kaufman, R.H., & Melnick, J.L. (1980). Asymptomatic virus shedding after herpes genitalis. American Journal of Obstetrics and Gynecology, 137, 827-830.
- Adam, E., Kaufman, R.H., Mirkovic, R.R., & Melnick, J.L. (1979). Persistence of virus shedding in asymptomatic women after recovery from genital herpes. Obstetrics and Gynecology, 53, 171-173.
- Adam, E., Rawls, W.E. & Melnick, J.L. (1974). The association of herpesvirus type 2 infection and cervical cancer. Preventive Medicine, 3, 122-141.
- Aurelian, L. (1974). Persistence and expression of the herpes simplex virus type 2 genome in cervical tumor cells. Cancer Research, 34, 1126-1134.
- Beard, B. (1971). The quality of life before and after renal transplantation. Diseases of the Nervous System, 32, 24-31.
- Blough, H.A. & Giuntoli, R.L. (1979). Successful treatment of human genital herpes with 2-deoxy-D-glucose. Journal of the American Medical Association, 241, 2798-2801.
- Bridgford, M.H. (1971). Self-conception and social rehabilitation of kidney transplant patients and chronic hemodialysis patients. Dissertation Abstracts International, 31, 5615.
- Castelnuovo-Tedesco, P. & Krout, B.M. (1970). Psychosomatic aspects of chronic pelvic pain. International Journal of Psychiatry and Medicine, 1, 109.
- Center for Disease Control (1982). Genital herpes infections--United States, 1966-1979. Morbidity and Mortality Weekly Report, 31, 137-139.

- Chang, T.W. (1977). Genital herpes and type 1 herpes virus homines. Journal of the American Medical Association, 238, 155.
- Chang, T.W., Fiumara, N.J., & Weinstein, L. (1974). Genital herpes: some clinical and laboratory observations. Journal of the American Medical Association, 229, 544-545.
- Chou, S., Gallaher, J.G., & Merigan, T.C. (1981). Controlled clinical trial of intravenous acyclovir in heart-transplant patients with mucocutaneous herpes simplex infection. Lancet, ii, 1392-1394.
- Cohn, E.M., Ledermen, J.J., & Shore, E. (1970). Regional enteritis and its relation to emotional disorders. American Journal of Gastroenterology, 54, 378-387.
- Corey, L., Adams, H.G., Brown, Z.A., & Holmes, K.K. (1983). Genital herpes simplex virus infections: clinical manifestations, course and complications. Annals of Internal Medicine, 98, 958-972.
- Corey, L., Fife, K.H., Benedetti, J.K., Winter, C., Fahnlander, A., Connor, J.D., Hinz, M.A., & Holmes, K.K. (1983). Intravenous acyclovir for the treatment of primary genital herpes. Annals of Internal Medicine, 98, 914-921.
- Corey, L. & Holmes, K.K. (1980). The use of 2-deoxy-D-glucose for genital herpes (letter). New England Journal of Medicine, 243, 29.
- Corey, L. & Reeves, W.C. (1981). Reply to Strassburg (letter). New England Journal of Medicine, 305, 1587.
- Crain, R., Sussman, M.B., & Weil, W.B., Jr. (1966). Effects of a diabetic child on marital integration and related measures of family functioning. Journal of Health and Human Behavior, 7, 122-127.
- Cummings, J.W. (1970). Hemodialysis: feelings, facts, fantasies: the pressures and how patients respond. American Journal of Nursing, 70, 70-76.
- Ford, C., Glober, G., & Castelnuovo-Tedesco, P. (1969). A psychiatric study of patients with regional enteritis. Journal of the American Medical Association, 208, 311-315.
- Friedman, E.A., Goodwin, N.J., & Chandhry, L. (1970). Psychosocial adjustment to maintenance hemodialysis. New York State Journal of Medicine, 70, 629-637.

- Friedrich, E.G. (1980). Herpes vaginitis and vulvitis. In Quilligan, E.J., ed. Current Therapy in Obstetrics and Gynecology. W.B. Saunders Co.: Philadelphia.
- Gerbert, B. (1980). Psychological aspects of Crohn's disease. Journal of Behavioral Medicine, 3, 41-58.
- Goldberg, D.P. & Blackwell, B. (1970). Psychiatric illness in general practice: a detailed study using a new method of case identification. British Medical Journal, 2, 439-443.
- Goldmeir, D. & Johnson, A. (1982). Does psychiatric illness affect the recurrence rate of genital herpes. British Journal of Venereal Disease, 58, 40-43.
- Greene, R.L. (1980). The MMPI: An Interpretive Manual. Grune & Stratton: New York.
- Hamilton, R. (1980). The Herpes Book. J.P. Tarcher, Inc.: Los Angeles.
- Hutfield, D.C. (1966). History of herpes genitalis. British Journal of Venereal Disease, 42, 263-268.
- Hutfield, D.C. (1968). Herpes genitalis. British Journal of Venereal Disease, 44, 241-250.
- Kalinyak, J.E., Fleagle, G., & Docherty, J.J. (1977). Incidence and distribution of herpes simplex virus type 1 and 2 from genital lesions in college women. Journal of Medical Virology, 1, 175-181.
- Kaufman, R.F. & Hersher, B. (1971). Body-image changes in teenage diabetics. Pediatrics, 48, 123-128.
- Kaufman, R.H. (1980). Infectious vaginitis. In Quilligan, E.J., ed. Current Therapy in Obstetrics and Gynecology. W.B. Saunders Co.: Philadelphia.
- Kaufman, R.H., Gardner, H.L., Rawls, W.E., Dixon, R.E., & Young, R.L. (1973). Clinical features of herpes genitalis. Cancer Research, 33, 1446-1451.
- Kern, E.R., Glasgow, L.A., Klein, R.J., & Friedman-Kein, A.E. (1982). Failure of 2-deoxy-D-glucose in the treatment of experimental cutaneous and genital infections due to herpes simplex virus. Journal of Infectious Diseases, 146, 159-166.
- Khan, A.U., Herndon, C.H., & Ahmadian, S.Y. (1971). Social and emotional adaptations of children with transplanted kidneys and chronic hemodialysis. American Journal of Psychiatry, 127, 119-198.

- Knox, S.R., Corey, L., Blough, H.A., & Lerner, M. (1982). Historical findings in subjects from a high socioeconomic group who have genital infections with herpes simplex virus. Sexually Transmitted Diseases, 9, 15-20.
- Luborsky, K., Mintz, J., Brightman, V.J., & Katcher, A.H. (1976). Herpes simplex and moods: a longitudinal study. Journal of Psychosomatic Research, 20, 543-548.
- Mitchell, C.D., Gentry, S.R., Boen, J.R., Bean, B., Groth, K.E., & Balfour, H.H. (1981). Acyclovir therapy for mucocutaneous herpes simplex infections in immunocompromised patients. Lancet, ii, 1389-1392.
- Mock, L.A. (1975). Psycho-social aspects of home and in-center dialysis. Unpublished doctoral dissertation, University of Houston.
- Nahmias, A.J., Naib, Z.M., Josey, W.E., & Clepper, A.C. (1967). Genital herpes simplex infection: virologic and cytologic studies. Obstetrics and Gynecology, 29, 295-400.
- Nahmias, A.J., VonReyn, C.F., Josey, W.E., Naib, Z.M., & Hutton, R.D. (1973). Genital herpes simplex virus infection and gonorrhea. British Journal of Venereal Disease, 49, 306-309.
- Naib, Z.M., Nahmias, A.J., Josey, W.E., & Kramer, J.H. (1969). Genital herpetic infection: association with cervical dysplasia and carcinoma. Cancer, 23, 940-945.
- Naib, Z.M., Nahmias, A.J., Josey, W.E., & Zaki, S.A. (1973). Relationship of cytohistopathology of genital herpes virus infection to cervical anaplasia. Cancer Research, 33, 1452-1458.
- National Diabetes Data Group of the National Institutes of Health (1979). Classification and diagnosis of diabetes mellitus and other categories of glucose intolerance. Diabetes, 28, 1039-1057.
- Ng, A.B., Reagan, J.W., & Yen, S.S.C. (1970). Herpes genitalis. Obstetrics and Gynecology, 36, 645-651.
- Partridge, J.W., Garner, A.M., Thompson, C.W., & Cherry, T. (1972). Attitudes of adolescents toward their diabetes. American Journal of Diseases of Children, 124, 226-229.
- Peutherer, J.R., Smith, I.W., & Robertson, D.H.H. (1981). Association of herpes simplex virus types 1 and 2. In Nahmias, A.J., Dowdle, W.R., & Schinazi, R.E., eds. The Human Herpes Virus. Elsevier: New York.

- Reeves, W.C., Corey, L., Adams, H.G., Vontver, L.A., & Holmes, K.K. (1981). Risk of recurrence after first episodes of genital herpes. New England Journal of Medicine, 305, 315-319.
- Renaer, M., Vertommen, H., Nijs, P., Wagemans, L., & Van Hemelrijck, T. (1979). Psychological aspects of chronic pelvic pain in women. American Journal of Obstetrics and Gynecology, 134, 75-80.
- Royston, I. & Aurelian, L. (1970). Immunofluorescent detection of herpes virus antigens in exfoliated cells from human cervical carcinoma. Proceeding of the National Academy of Science, 67, 204-212.
- Rubini, M. & Goldman, R. (1968). Chronic renal disease: some sociological aspects of dialysis and transplantation. California Medicine, 108, 90-95.
- Seligman, J. (November, 1980). The misery of herpes II. Newsweek, 10, 105.
- Strassburg, M.A. (1981). Recurrent genital herpes: reinfection or reactivation. New England Journal of Medicine, 305, 1586-1587.
- Sullivan, B.J. (1979). Adjustment in diabetic adolescent girls: I. Development of the diabetic adjustment scale. II. Adjustment, self-esteem, and depression in diabetic adolescent girls. Psychosomatic Medicine, 41, 119-138.
- Sumaya, C.V., Marx, J., & Ullis, K. (1980). Genital infections with herpes simplex virus in a university student population. Sexually Transmitted Diseases, 7, 16-20.
- Taylor, B.J. (1978). The psychological and behavioral effects of genital herpes in women: high recurrers vs. low recurrers. Unpublished doctoral dissertation, University of Washington.
- Tierney, J. (May, 1982). Herpes break out. Science, 14.
- United States Department of Commerce (1982-1983). Statistical Abstract of the United States.
- Van Gelder, L. (March, 1982). The terrible curse of herpes. Rolling Stone, 24-26.
- Vontver, L.A., Hickok, D.E., Brown, Z., Reid, L., & Corey, L. (1982). Recurrent genital herpes simplex virus infection in pregnancy: infant outcome and frequency of asymptomatic occurrences. American Journal of Obstetrics and Gynecology, 143, 75-81.

Vontver, L.A., Reeves, W.C., Rattray, M., Corey, L., Remington,
M.A., Tolentino, E., Schweid, A., & Holmes, K.K. (1979).
Clinical course and diagnosis of genital herpes simplex virus
infection and evaluation of topical surfactant therapy.
American Journal of Obstetrics and Gynecology, 133, 548-554.

Ward, W. (1977). The pathogenesis of Crohn's disease. Lancet, i,
903-905.

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APPENDIX A

Letter to Participants

We are currently collecting information on women who have been seen for various gynecological problems. We would like to ask you for your help and cooperation in conducting this important scientific research. The information obtained in this study will provide valuable assistance in future program planning and decision-making for gynecology patients. Your help is sincerely needed and would be greatly appreciated.

If you are willing to participate, please fill out the following questionnaires. It will require approximately 45 minutes to complete the questionnaires. While filling them out, please remember to answer the questions quickly--do not spend a lot of time on any one question. When you have finished, please return all materials in the enclosed stamped envelope as soon as possible--we would like to receive the materials within 2 weeks of sending them out to you.

Janine Shaw, a doctoral candidate, will be conducting the research and will be available at 521-3013 to answer any questions you might have. We would like to emphasize that this is being conducted in a confidential, anonymous fashion--your privacy is assured.

Thank you for your cooperation. If you are interested in the results of this study, they will be made available to you upon completion. If you are not interested in participating, simply return the forms in the enclosed envelope.

Sincerely,

Martha Allen, R.N.
Baylor OB/GYN Research

APPENDIX B

Demographic/Sexual History Questionnaire

Please complete and return with other materials.

Age:
1 Years

Ethnic identification:

☒ Caucasian
☐ Black
☐ Hispanic
☐ Other

Marital status:

☐ Married: Legal
☒ Living Together
☐ Single
☐ Divorced
☐ Widowed
☐ Separated

Number of marriages:

0 Marriages

What level of education
have you completed?

2 Years

How many children do you
have?

0 Children

Approximate annual income:

☐ Less than \$5,000
☒ From \$5,001 to \$10,000
☐ From \$10,001 to \$15,000
☐ From \$15,001 to \$25,000
☐ Greater than \$25,000

Religious preference:

☐ Catholic
☒ Protestant
☐ Jewish
☐ Other

In general, how would you rate
your sex life?

☒ Very satisfactory
☐ Satisfactory
☐ Neither satisfactory nor
unsatisfactory
☐ Unsatisfactory
☐ Very unsatisfactory

Age of first sexual inter-
course:

19

Total number of males with
whom you have had inter-
course:

0

Have you had any of the following:

☒ Chicken Pox	If so, when?	<u>2</u>
☐ Shingles	If so, when?	<u> </u> (last occurrence)
☐ Cold Sores	If so, when?	<u> </u> (last occurrence)
☐ Genital Herpes	If so, when?	<u> </u> (last occurrence)
☐ Gonorrhea	If so, when?	<u> </u> (last occurrence)
☐ Syphilis	If so, when?	<u> </u> (last occurrence)
☐ Trichomoniasis	If so, when?	<u> </u> (last occurrence)
☐ Hemophilis	If so, when?	<u> </u> (last occurrence)

APPENDIX C

Reminder Letter

This is just a reminder to ask for your prompt cooperation in filling out the questionnaires sent to you by our office. It is very important that we receive as many questionnaires as possible in order to best help future gynecology patients. We know that it takes approximately an hour to complete the forms and we gratefully appreciate your investment of time in helping us.

If you have already sent the forms back to us, please disregard this reminder. If you have any questions, please contact me at 338-1801, after 5.

Also, if it is impossible for you to complete the forms, please return all of the materials in the stamped envelope which was sent with the packet--we are able to reuse the test booklets and would therefore, hope to receive back all the materials (even if you are unable to complete them).

Once again, thank you very much for your assistance. We will be happy to provide you with results of this research once it is completed.

Sincerely,

Janine Shaw
Research Coordinator